OCR
RECOGNISING ACHIEVEMENT

Tuesday 11 June 2013 – Afternoon

GCSE DESIGN AND TECHNOLOGY Graphics

A532/01 Sustainable Design

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
None

Duration: 1 hour

Candidate forename		Candidate surname	

Centre number						Candidate number				

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Answer **all** the questions in **Section A and Section B**.
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- The total number of marks for this paper is **60**.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- This document consists of **12** pages. Any blank pages are indicated.

SECTION A

Answer **all** questions.

You are advised to spend 15 minutes on this section.

On questions 1–5 circle your answer.

1 Eco-friendly materials:

(a) Use toxic chemicals

(b) Use non-renewable sources

(c) Use sustainable sources

(d) Are made in third-world countries **[1]**

2 Primary recycling is:

(a) Using a product again without changing it

(b) Cutting up a product to recycle it

(c) Chemically breaking down a product

(d) Making another product **[1]**

3 The Green Dot symbol shows that:

(a) A product can be recycled

(b) The manufacturer has contributed towards recycling

(c) The manufacturer is environmentally friendly

(d) The product cannot be recycled **[1]**

4 To disassemble a product means to:

(a) Take it apart

(b) Use it again

(c) Make it

(d) Mend it when it is broken **[1]**

5 The symbol shown below means:

(a) Plastic should be recycled

(b) Recycle aluminium

(c) Throw your rubbish away

(d) Glass should be disposed of in a bottle bank. **[1]**

6 State what a Mobius Loop symbol tells you about a product.

..... **[1]**

7 Give the meaning of the term 'disposal'.

..... **[1]**

8 Name **one** smart material that changes colour depending on the temperature.

..... **[1]**

9 Name **one** specific plastic that can be recycled.

..... **[1]**

10 State the meaning of the term geothermal power.

..... **[1]**

Decide whether each of the following statements is **true** or **false**.
Tick (✓) the box to show your answer.

		True	False	
11	Aluminium is not recyclable.	☐	☐	**[1]**
12	The use of non-renewable materials should be encouraged.	☐	☐	**[1]**
13	CFCs are beneficial to the earth.	☐	☐	**[1]**
14	Good design improves quality of life.	☐	☐	**[1]**
15	COSHH regulations help to protect workers from exposure to hazardous substances.	☐	☐	**[1]**

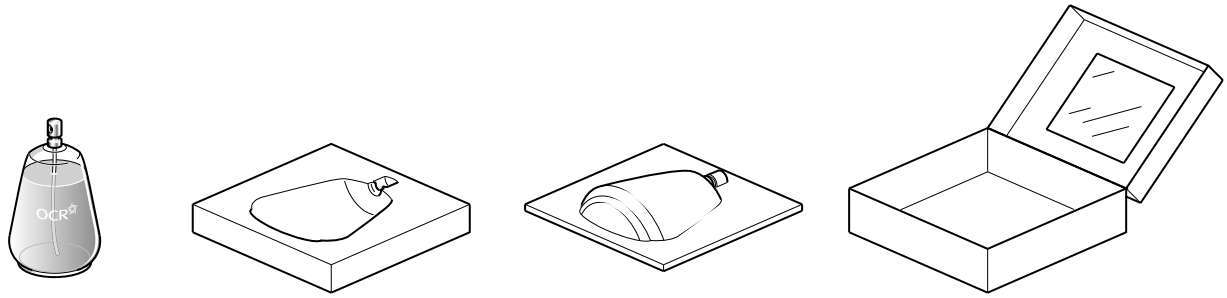
Total [15]

SECTION B

Answer **all** questions.

You are advised to spend 45 minutes on this section.

16 Fig. 1 shows packaging used for a perfume bottle.



glass perfume bottle	vacuum formed plastic tray to contain the perfume bottle	plastic bubble cover to protect the perfume bottle	outer box made from bleached card with plastic window

Fig. 1

(a) State **one** part of the packaging that is biodegradeable.

..... **[1]**

(b) The manufacturer wants to make the packaging more environmentally friendly.

Explain **three** ways this could be done.

1 .....

.....

.....

2 .....

.....

.....

3 .....

.....

.....

[6]

(c) Give **one** reason why the manufacturer wraps the outer packaging in cellophane before it is distributed.

..... **[1]**

(d) The perfume is manufactured close to where it is sold.

Give **two** advantages to the community of manufacturing and selling locally.

1 .....

.....

2 .....

.....
[2]

(e) With reference to Fig. 1, state **one** way the consumer can help to make the recycling of packaging easier.

..... **[1]**

(f) Complete the diagram below to show the tertiary recycling process of packaging.

Packaging is collected for recycling or taken to a ……

↓

Packaging is …… into different components by trained staff

↓

Water added to cardboard and mixed to a pulp, virgin pulp blended with the recycled pulp

↓

…… added to the pulp mixture to clean and sterilise, pulp is pressed and dried flat

↓

Processed cardboard sheets are …… to size

↓

Processed cardboard is used to make new products

[4]

Total [15]

17 Fig. 2 shows a child's lunchbox made from plastic.

Fig. 2

(a) With reference to the child's lunchbox in Fig. 2, explain what is meant by these terms:

(i) Functional

.....

.....

.....

..... **[3]**

(ii) Built-in obsolescence

.....

.....

.....

..... **[3]**

(b) The mobius loop symbol in Fig. 3 is embossed onto the bottom of the lunchbox.

(i) State the meaning of the number and letters on the symbol in Fig. 3.

Fig. 3

.....

..... **[1]**

(ii) Explain how the embossed symbol would be helpful to a partially sighted person.

.....

.....

..... **[2]**

(c)* Explain how Life Cycle Analysis (LCA) is an important aspect of a designer's role.

Marks will be awarded for the quality of written communication in your answer.

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..... **[6]**

Total [15]

18 Fig. 4 shows a net (development).

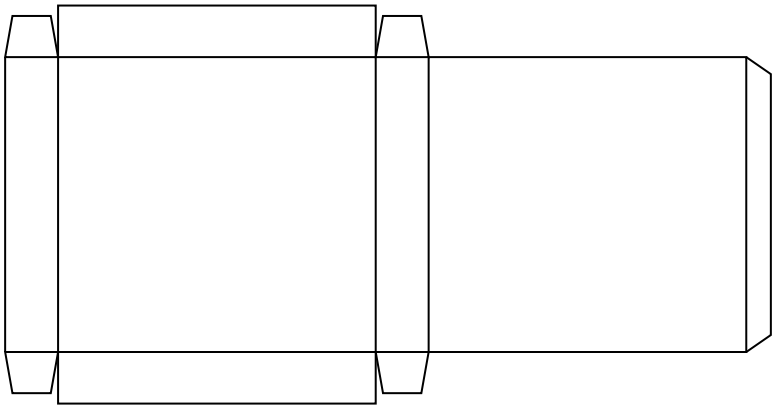

Fig. 4

(a) Give **three** benefits to the environment of using a computer program to create the net (development).

1 .....

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2 .....

.....

.....

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3 .....

.....

.....

.....

[6]

(b) Describe **one** disadvantage that using computers can have on the environment.

.....

.....

.....

..... **[2]**

(c) The net (development) should be tessellated before printing in quantity.

Name **one** 6R that refers to this.

..... **[1]**

(d) **(i)** State **two** ways a manufacturer can decrease their carbon footprint.

1 .....

.....

2 .....

.....

[2]

(ii) Design a symbol that could be printed onto packaging to show consumers that a product has a low carbon footprint.

[4]

Total [15]

END OF QUESTION PAPER

PLEASE DO NOT WRITE ON THIS PAGE